

-15-

CLAIMS

1. A telemedicine system comprising a patient-based physiological data acquisition and transmittal device connectable via a wireless network to transmit physiological data to a remote server, wherein the patient-based measurement and data transmittal device comprises:
 - an electronic physiological data acquisition unit for measuring a physiological parameter of a patient to acquire and output data representing the parameter;
 - a wireless transmitter which upon receiving the output data from the data acquisition unit automatically transmits the output data via the wireless network to the remote server.
2. A telemedicine system according to claim 1 wherein the wireless transmitter is adapted to receive automatically the output data from the physiological data acquisition unit on data acquisition thereby, and thereupon automatically to transmit the output data immediately in real time to the remote server.
3. A telemedicine system according to claim 1 or 2 wherein the wireless transmitter is adapted to establish a connection to the wireless network automatically when it is switched on and to maintain the connection while switched on.
4. A telemedicine system according to claim 1, 2 or 3 wherein the wireless network is a packet-switched network.
- 25 5. A telemedicine system according to claim 4 wherein the wireless network is a public network.
6. A telemedicine system according to claim 5 wherein the wireless network is the General Packet Radio Service (GPRS) network.

-16-

7. A telemedicine system according to claim 1, 2 or 3 wherein the wireless network is the 3G, PDC-P or EDGE network.
8. A telemedicine system according to any one of the preceding claims wherein the wireless transmitter is a cellular telephone/pda.
9. A telemedicine system according to claim 8 wherein a software application is provided on the cellular telephone/pda to interface with the physiological data acquisition unit and to control data transmission to the remote server.
10. A telemedicine system according to any one of the preceding claims wherein the patient-based measurement and data transmittal device is adapted to check the acquired data for compliance with preset conditions.
15. 11. A telemedicine system according to claim 10 wherein the preset conditions relate to the quality or completeness of the data or the condition of the patient.
12. A telemedicine system according to any one of the preceding claims wherein the patient-based measurement and data transmittal device comprises a display for displaying the data to the patient.
20. 13. A telemedicine system according to any one of the preceding claims wherein the patient-based measurement and data transmittal device stores the data if a network connection is unavailable and automatically retransmits it later when a network connection is available.
25. 14. A telemedicine system according to any one of the preceding claims wherein the remote server processes the data to check the condition of the patient and responds with a message via the wireless network.

-17-

15. A telemedicine system according to any one of the preceding claims wherein the remote server formats the data for delivery and display to a clinician.
16. A telemedicine system according to any one of the preceding claims wherein the
5 remote server comprises a data analyser for identifying trends in the data and a message generator for generating messages to be output to at least one of the patient and a clinician.
17. A telemedicine system according to claim 16 wherein the data analyser comprises
10 a Kalman smoother for smoothing the data.
18. A telemedicine system according to any one of the preceding claims wherein the physiological data acquisition unit is one of: an electronic flow meter for recording Peak Expiratory Flowrate, an electronic blood glucose meter, a blood pressure
15 monitor, and a heart rate monitor.
19. A telemedicine system according to any one of the preceding claims wherein the physiological data acquisition unit and wireless transmitter are integrated as a single device.
20
20. A telemedicine system according to any one of the preceding claims wherein the data sent from the wireless transmitter is time stamped with reference to a secure clock.
- 25 21. A telemedicine system according to claim 20 wherein the secure clock is provided in the patient-based physiological data acquisition and transmittal device.
22. A telemedicine system according to any one of the preceding claims wherein a secure data store is provided in the patient-based physiological data acquisition and
30 transmittal device.

-18-

23. A telemedicine system according to any one of the preceding claims wherein the data sent from the wireless transmitter is digitally signed.
24. A telemedicine system according to any one of the preceding claims wherein the data sent from the wireless transmitter comprises the location of the wireless transmitter.
5
25. A telemedicine system according to claim 24 wherein information is sent from the server to the patient-based physiological data acquisition and transmittal device for display thereon and is adapted depending on the location of the wireless transmitter.
10
26. A telemedicine system according to any one of the preceding claims wherein information is sent from the server to the patient-based physiological data acquisition and transmittal device for display thereon to initiate interaction with the patient and is adapted depending on the value of the physiological parameter measured by the electronic physiological data acquisition unit.
15
27. A telemedicine system according to any one of the preceding claims wherein information is sent from the server to the patient-based physiological data acquisition, and transmittal device, and wherein in dependence upon said physiological parameter measurement and transmission to the server said information comprises a prescription for medication.
20
28. A telemedicine system according to any one of the preceding claims wherein the electronic physiological data acquisition unit is connectable to the a wireless transmitter by a connection comprising a data head including an interface.
25
29. A telemedicine system according to claim 28 wherein the data head comprises a secure clock for time stamping the data.
30

-19-

30. A telemedicine system according to claim 28 or 29 wherein the data head comprises a secure memory for storing the data.
31. A telemedicine system which incorporates handset delivery of advice relating to changes in medication necessary to control a respiratory condition including asthma.
32. A telemedicine system according to claim 31 wherein the handset comprises a graphical device indicating the state of an asthmatic condition relative to an alert level.
- 10 33. A telemedicine system according to claim 31 or 32 wherein the medication advice is based on readings analysed by software at the server and/or handset.
34. A telemedicine system which incorporates handset delivery of geographically local information relevant to the patient condition from a central server, such information being derived from knowledge of the geographic location of the wireless handset and being adapted based on measurement of the patient condition by the telemedicine system.
35. A telemedicine system according to claim 34 wherein said local information comprises local air quality information and weather conditions relevant to patients with respiratory diseases.